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LABOR SAVING IN LIVESTOCK PRODUCTION

Prepared in the
Animal Husbandry Division

Stock Grazing on Fall-Sown Rye Saves the Labor of Feeding.

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LIVE-STOCK PRODUCTION permits the distribution of labor through the year rather than concentrating it at certain seasons, as in grain farming; it provides profitable outdoor work for women and children, releasing active men for heavier work; and it offers a field for older men and retired farmers. In each case it calls out a labor reserve.

These facts, important at all times, are especially so now, when a great portion of the national man power is engaged in war and the supporting occupations.

In producing live stock many labor economies may be employed. Some of these are pointed out in the following pages.

LABOR SAVING IN LIVE-STOCK PRODUCTION.

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PRODUCING LIVE STOCK AS A MEANS OF SAVING LABOR.

By GEORGE M. ROMMEL, *Chief, Animal Husbandry Division.*

THE question of labor saving on the farm will doubtless grow in importance as the war goes on.

The live-stock farmer, as well as the cotton farmer and the grain farmer, will be forced to face this issue. Certain general considerations, however, are very important in this connection, and proper attention to them will assist materially in solving not only the question of the labor supply, so far as live-stock needs are concerned, but also the whole farm-labor supply problem.

In the first place, one of the most serious phases of the farm labor problem is the maintenance of a steady supply of labor and the interest of the laborer in farm operations. In both of these matters the farmer who has little or no live stock has a much more difficult

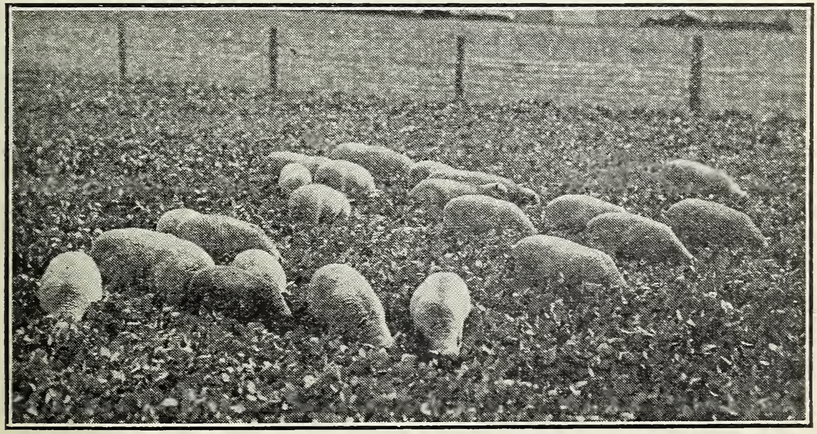

FIG. 1.—Sheep make good gains in soy beans and save the labor of harvesting.

problem to solve than the one who maintains the maximum amount of live stock consistent with his farm operations. For example, the farmer who devotes his entire effort to grain production or cotton production is confronted with a keen demand for labor at the most critical period in the crop year. He has the rush during the planting season, which shortly is followed by the tremendous demands of harvest. Between times, especially during the winter, this demand is not so urgent and he is, therefore, compelled to use temporary help (especially at harvest time), which, in many cases, is unreliable and expensive.

The farmer whose operations make possible the distribution of the maximum amount of labor throughout the year is in a much stronger position from every standpoint than the one who is compelled to call in large numbers of temporary helpers at critical times.

Live-stock production is a year-round proposition and therefore makes possible such a distribution of labor. Furthermore, live stock are interesting to nearly all human beings. There is much more to interest the average man in watching the growth of the young animals or the fattening of feeders, and much less drudgery, even in feeding operations, than there is in the tilling of the soil and the cultivation of the crops. Beautiful as growing crops unquestionably are, and necessary as they are to the maintenance of live stock, the farm which only has growing crops lacks for most people the vital thing which is necessary to make country life attractive.

Many farmers recognize the appeal which animals have for the average man and cater to this in handling their employees. For example, there are cases where the farm owner gives the laborer a share in the animal produce of the farm, such, for example, as every tenth pig, which becomes the property of the man who takes care of the hogs, or a calf now and then, a lamb, etc.

Where there is a year-round requirement for labor it is also possible to utilize to better advantage the services of married men, and their wives and children can often be useful. Where laborers are not needed on the farm the year around there is not the advantage of this preference for married men.

The second consideration with regard to the labor saving made possible by the use of live stock is referred to a number of times in the following pages, but deserves special emphasis. That is the possibility of using the services of women and children. The activities of women in farm operations in the allied countries form one of the noteworthy features of the war preparations.

In England, for example, at present over 225,000 women are regularly engaged on farms. Canada has taken this matter up systematically, and interest is growing rapidly in the United States. On a farm with-out live stock the extensive service of women is not desirable outside of the house, as women and children should be spared the heavier tasks in farm operations. In most of the work connected with the care of animals, especially in the case of the smaller animals, women and children can do most of the work required, and the men can be released for the heavier tasks on the farm.

If this feature of the labor problem is generally recognized by giving the women and children more than a laborer's interest in the animals, a most important influence will be brought to bear on the stability of the country population. A woman or child on the farm who has a proprietary interest in some of the animals on the farm will be much less likely to become dissatisfied with farm life.

It is possible that the germ of a most important development will be found in this feature of labor saving. Women from time immemorial have been interested in live-stock production, but animal husbandry, as we know it, as a profession has been one of the last for women to take up. Now, however, young women from the best families are beginning to take the animal-husbandry courses in the agricultural colleges. They have won distinction in the stock-judging contest at the International Live Stock Exposition, and one of these young women has already been appointed as scientific assistant in Animal Husbandry in the United States Bureau of Animal Industry.

The third general consideration to be mentioned is the possibility of retired farmers who are skilled live-stock producers resuming in part their farming operations. Every country town has a large number of men who have made a success in farming, and many of these men have been among our best live-stock breeders and feeders. Often they are in perfect health, with time to spare, and they have frequently left the farm in order to turn over its management to a son or other relative. The war is already bringing thousands of these men back into active service. They can not, of course, do so much of the heavy work on the farms as their sons and grandsons, but they can materially relieve other labor supplies in the care of animals.

The following pages give detailed suggestions concerning possible saving of labor with the different classes of farm animals.

USE OF WORK STOCK.

By J. O. Williams, *Specialist in Horse Husbandry.*

More efficient utilization of horsepower on the average farm will assist in a large measure in saving labor. The necessary horsepower is usually available for the efficient operation of the average American farm, but this power is not always utilized or distributed to greatest advantage.

The practice of plowing as much land as possible in the late fall rather than in the spring, when work is pressing, will result in labor saving, as this method utilizes both horsepower and labor at a season when it would otherwise be practically idle.

In practically the entire cotton belt the one-horse breaking plow is in general use. This requires the use of one man per horse in the operation of the farm. By the use of the two-horse breaking plow the same labor could break more land and at the same time make a better seed bed.

Planting and seeding are still done by hand in some parts of the cotton belt, and the distribution of fertilizers and manure is largely done in the same manner. This custom has prevailed no doubt because the labor has been plentiful. By the use of horse planters, grain drills, fertilizer distributors, and manure spreaders, where the amount of land under cultivation would justify the expenditure for the implements, a great saving of labor could be effected.

In the cultivation of crops in many parts of the South the use of the one-horse plow and sweep prevails, and because of the inefficiency of these implements the crops must be hoed almost continually in order to keep the crop clean. This method could be improved upon by using the light harrow or weeder when the crop is young and later the two-horse single-row cultivator. This would result in greatly increasing the amount of work performed with the same labor, and at the same time doing the work more efficiently.

In many sections of the country the use of the two-row cultivator has been demonstrated as practicable, thereby utilizing more horsepower and performing more work with the same labor. The use of this implement should be extended where conditions warrant it. On the average corn-belt farm more horsepower per man can be utilized in many instances. The use of four or five horses on the double gang plow would accomplish a much greater amount of work than is now performed per man on a majority of farms where the two-horse walking plow is used. In the preparation of the seed bed one man can readily handle four or six horses hitched to the section harrow to which additional sections have been added, thereby increasing the amount of land harrowed with the same labor. In the harvesting of crops horsepower may be utilized more efficiently in many sections by the use of more horsepower per man.

Cooperative use of machinery in harvesting the wheat and corn crop would utilize horsepower and labor to advantage by the exchange of labor among small farmers.

Hauling out manure on the average farm as it is produced, instead of allowing it to accumulate around the buildings and hauling it out when convenient, would be an economical practice. Where the expenditure is justifiable the use of a manure spreader would distribute the manure to better advantage and effect considerable saving in labor over the old method of hauling out and spreading by hand.

HOGS.

By E. Z. Russell, *Specialist in Swine Husbandry.*

One of the best labor savers and one of the most economical and efficient means of feeding hogs is the self-feeder. Experiments comparing the self-feeder with feeding by hand have been made at a number of experiment stations, and most of them have shown not only that the self-feeder is a time saver, but that more pounds of pork will be produced with a given number of pounds of grain by using the self-feeder. This applies not only to the use of corn, but to ground and mill feeds, such as tankage, shorts, middlings, peanut meal, soy-bean meal, etc. By using the self-feeder in feeding the ground and mill feeds one does away with the laborious work of feeding slop to hogs. No definite experiments have been made along the line of comparing feeds of this kind fed dry as against slop, yet some work of this kind has been done and results were very satisfactory with the self-feeder plan. Many farmers and hog growers have tried feeding these feeds in a self-feeder, and the results were fully as good as or better than those obtained by the system of slop feeding.

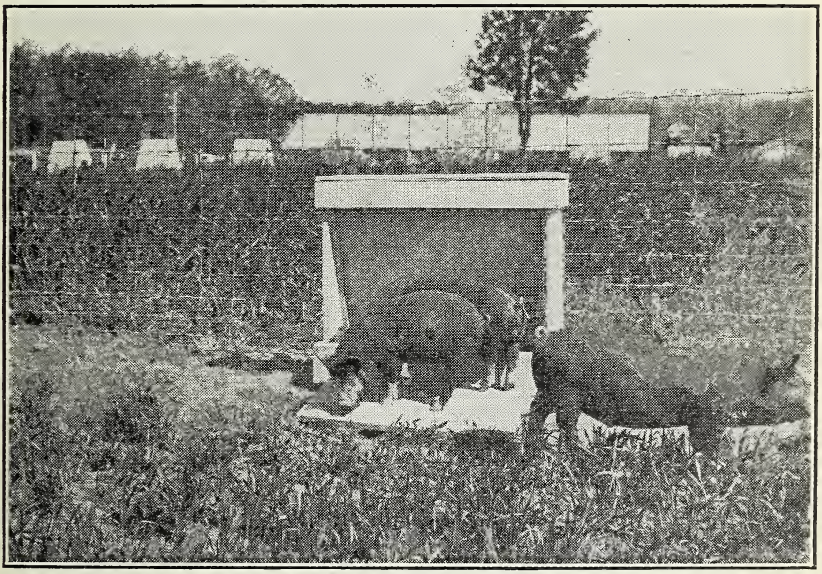

Fig. 2.—Self-feeders for hogs save the farmer's time and the hogs make better gains than when fed by hand. Homemade feeders are entirely feasible.

It is highly desirable that feeds used in feeding hogs, especially corn, be fed as near as possible to the crib or granary. Feeding floors should be built adjoining corncrib or granaries holding shelled corn.

Another means of saving labor in hog growing is the more extended use of woven-wire fence. If the hog grower has all his fields and lots fenced with hog-tight fencing, he can save the waste in these fields after harvest, and can also follow the method of hogging down corn, which is highly desirable and economical.

Probably the best use to which woven-wire fencing can be put is in making possible the use of forage crops. Our best hog growers have become convinced that feeding hogs in dry lots is no longer the best method. In nearly every part of the country where hogs are grown some kinds of forage crops can be successfully used, and they offer three distinct advantages: First, the saving of grain by allowing hogs to get all the green feed they want; second, the building up of the soil through the use of manure obtained from hogs continuously on these pastures, and, third, the much more sanitary conditions under which the hogs live, plus the exercise which the hogs get in pastures, both of which are necessities in successful hog growing. In some parts of the hog-growing country farmers are able to pasture their hogs ten or eleven months in the year. In almost all parts of the country hogs can be pastured at least six or seven months.

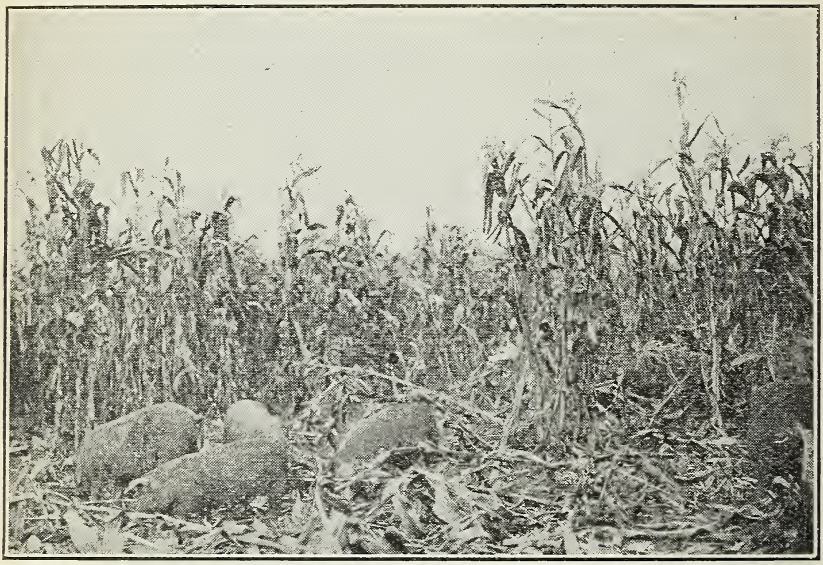

Fig. 3.—Hogs harvesting corn save much labor.

All these practices save labor in feeding, and in addition save a considerable amount of labor in hauling out and scattering manure that accumulates when feeding under the dry-lot plan.

Many hog feeders dip or spray their hogs to keep down the lice. Many commercial hog oilers on the market are practical and effective in keeping hogs from becoming infested with lice.

The general practice of growing hogs and feeding them the grains raised on the farms has a tendency to distribute the labor throughout the year.

SHEEP.

By H. E. ALLEN, *Specialist in Sheep Husbandry.*

Ordinarily the management of the farm flock of sheep calls for comparatively small demands upon farm labor. The labor cost per dollar's worth of wool or lamb is lower than for any other farm animal product. Yet, while sheep raising does not necessitate expensive equipment or heavy labor, it does require study and continuous attention. However, the effects of the reduced supply of available farm labor, brought about by the drain upon it by the Army and war industries, may be counteracted in part by the adoption, where possible, of one or more of the following suggestions:

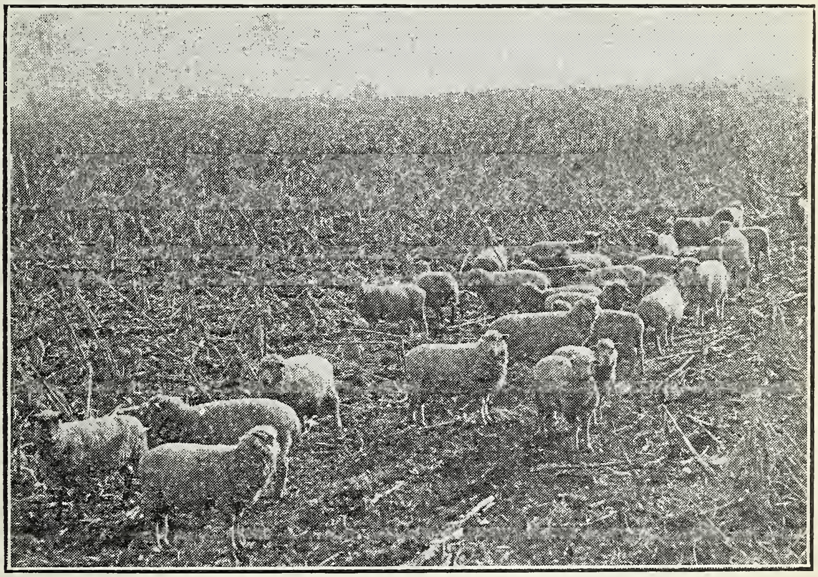

FIG. 4.—Every sheep its own waiter in this Corn-Belt field.

Some labor can be saved on the stock farm by a more general adoption of the practice of feeding sheep in cornfields. This practice has proved very satisfactory in many States. It, of course, necessitates purchases in the fall and marketing in December or January, and is, therefore, adaptable on a large scale only to such farms or sections as are in a position to make a practice of speculative feeding of live stock, as few farms at present raise a sufficient number of lambs to harvest the grain from a large acreage of corn.

A larger use of forage crops for fattening meat stock can be adopted with a saving of labor. This plan permits the putting on of large gains with crops which are harvested entirely by the animals themselves.

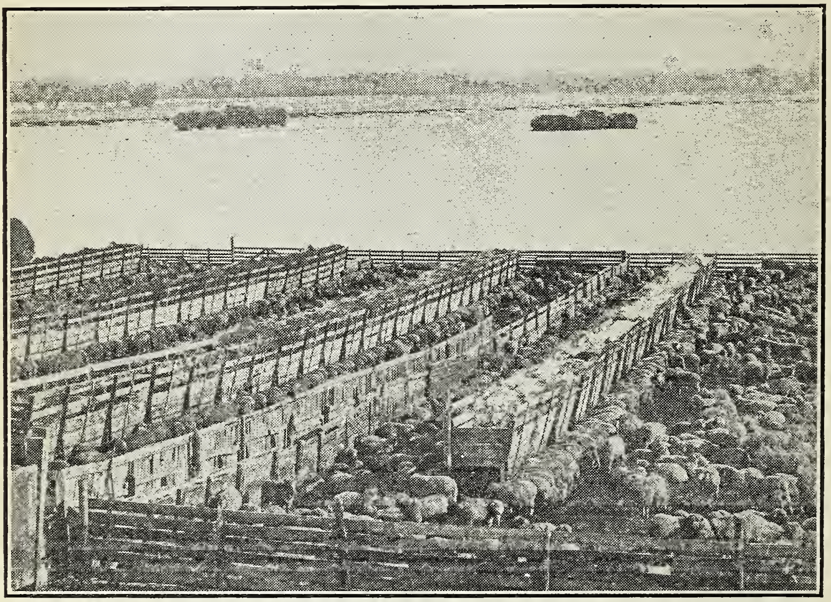

FIG. 5.—Self-feeders filled with hay are a great advantage in such large feeding operations as this.

In many sections fall-sown wheat and rye can be grazed by sheep, thereby making a great saving in winter feed as well as in the labor of feeding. In sections such as Tennessee this practice has become very general, and is found to work exceedingly well in the production of winter wheat.

Self-feeders for the feeding of hay to fatten sheep and lambs can be used to good advantage. Although their use in the feeding of grain to hogs will prove very satisfactory in the saving of labor, it is not recommended that they be used in feeding grain to sheep and lambs.

In range sections considerable winter labor can be economized and greater safety secured by the distribution of supplies of feed to strategic points on the winter range. Corn, cottonseed cake, or velvet beans can be stored in metal granaries at points which will permit of their ready distribution to the stock in case of storms, which commonly make it impossible to get feed to the stock from the nearest railroad points. In the event of a very open winter this feed may deteriorate during the following summer. In most sections, however, the climate is sufficiently dry to allow it to remain in storage for use in good condition during the second winter.

In the past, injury has been done by advocating sheep raising on lands where little or no labor or attention is needed and farms are thereby cleaned of weeds. So far as their appetite for weeds is concerned, sheep may be regarded to some extent as scavengers. They will eat most weeds and on any farm will reduce greatly the amount of land labor needed to hold weeds in check on the areas of pasture and grain crops. It is a mistake, however, to advocate the raising of sheep where the main interest is in weed control.

While the labor required for sheep production is continuous, it is not heavy, and if properly supervised can well be performed by boys or aged men incapable of other kinds of farm labor, and by girls and women. Sheep management can be learned and understood and the labor performed by anyone who is willing to observe carefully and think and attend to the details as attention is required.

It must be understood, however, that sheep raising should not be engaged in with an idea that little attention is required. The wants of sheep are numerous and varied, and frequent attention is required to forestall conditions that will result in ill health or lack of thrift. At lambing time frequent attendance day and night is necessary to avoid losses of ewes and young lambs.

BEEF CATTLE.

By F. W. Farley, *Specialist in Beef-Cattle Investigations.*

In general, labor in beef-cattle operations may be saved in two ways. The first, which probably will offer quickest relief and not require an extra outlay of capital, is to alter the daily routine of chores so as to reduce the amount of labor needed. (1) Allow calves to nurse their dams in the pasture instead of bringing them to the barn lots for that purpose. (2) Run the bull with the cows instead of keeping him in a paddock. (3) Stack coarse roughages in racks from which the cattle may eat at will instead of rationing their feed to them daily. (4) Use self-feeders in fattening cattle for market instead of rationing the feed to them once or twice a day, as the practice may be. (5) Feed the different feedstuffs in their whole state instead of chaffing, cutting, crushing, grinding, etc. (6) Load manure to the spreader and haul it to the field direct rather than dump it on piles, thereby eliminating the necessity of reloading. (7) Dehorn all grade cattle and pure breds not to be exhibited at fairs and run them together so far as possible rather than separate them according to sex, age, etc., thereby making it possible for one man to look after a greater number of cattle in the same length of time. (8) Carefully cull the herd so as to retain only

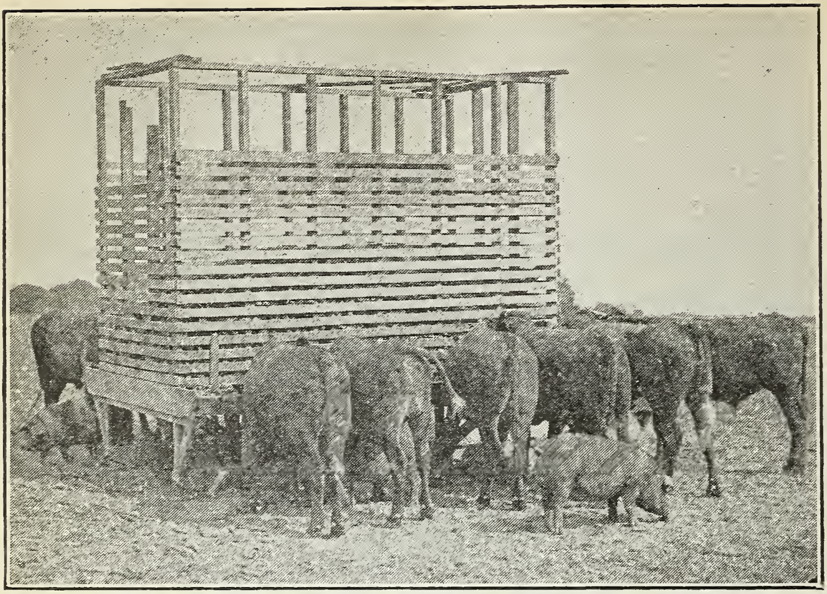

FIG. 6.—A two-fold saving, the cattle helping themselves and hogs garnering the waste.

profitable animals and reduce the number of surplus ones to be carried through seasons in which the greatest care per head must be supplied.

The second way to save labor with beef cattle is to supply labor-saving equipment. While this method requires an expenditure of money and will probably not bring such quick relief as the first method, the equipment supplied will be permanent and in the long run will probably be more economical in saving labor. The following are some of the forms of equipment that should be supplied for this purpose: (1) Permanent pasture; (2) self-feeders; (3) feed racks; (4) deep well; (5) windmill; (6) water-piping system; (7) water troughs; (8) litter carriers; (9) manure spreader; (10) dehorning chute, and (11) pasture fencing.

In many instances some of the suggestions given under both methods of saving labor could be economically applied.

POULTRY.

By A. R. LEE, *Animal Husbandman in Poultry Investigations.*

In general, the simplest methods of handling poultry are best, especially on general farms, where poultry is a side issue, though such farms furnish the bulk of the poultry production. Labor-saving appliances are of value on poultry farms, but are not always practical on general farms. Women and children can do most of the poultry work on a general farm and thereby release the labor of the men for other farm work. On general farms, place the poultry house convenient to the dwelling house in order to save steps.

One house holding from 75 to 150 hens can be used to advantage, allowing the hens free range all the time. An excellent arrangement is to have the house near an orchard, which furnishes a good range for the hens. By allowing free range the hens will pick up all the necessary green feed and will also get a considerable amount of their grain feed. Keep large hoppers containing dry mash before the hens constantly, so that it will be necessary to feed the scratch grains only once or twice daily. Very little more labor is required in caring for a flock containing from 100 to 150 hens than is required for from 30 to 100 hens, provided all the hens are kept in one house and have a large, free range. By handling a larger flock the labor per bird can be reduced materially and greater returns secured for the labor used.

A separate shed or a room in the laying house can be utilized to advantage for hatching chickens with hens, setting as many hens as possible at one time; this saves labor, as it takes only a little while longer to care for a number of sitting hens than for one hen. Confine the sitting hens to their nests and allow them all to come off at one time daily. An incubator may be used for hatching the eggs and the chicks may be put under hens for brooding, especially early in the season, when it is difficult to get hens to sit as early as is desirable to produce early chickens.

Raise the chickens under hens, putting from 15 to 25 chickens with each hen, and confine the hens to small coops placed on a good green sod, or a field of some growing crop whereby the young chickens will have free range on fresh land. A considerable number of hens with broods of chickens can be kept in a limited space where the hens are confined to the coops.

In sections where commercial hatcheries exist the farmer can have his eggs hatched there and thus save the labor of hatching the chicks. These chickens can be reared with hens, or a stove brooder which will cover from two to four hundred chicks may be used to good advantage, thereby saving labor in feeding and caring for the chicks and still allowing the young chickens free range. By the use of these commercial hatcheries all the chickens can be hatched at one time and the chickens can be brought out early in the spring, at which time it is most profitable to hatch and raise chickens.

Labor-saving methods can be utilized to better advantage on commercial poultry farms by careful planning of the arrangement of the buildings and by installing simple labor-saving devices. An expensive labor-saving equipment rarely pays even on large poultry farms.

Some of the practical devices are large dry-mash hoppers in which all the mash is fed, the piping of water to be convenient to each house, and in a long house the installing of a simple trolley system to carry the feed and to be utilized in cleaning the house. If several houses are used they should be arranged to save steps. Sufficient yard space should be allowed to keep the ground in good condition. It is a serious mistake to allow only a very small amount of yard space and thereby overstock the land and produce soil contamination.

A practical and comparatively inexpensive equipment consists of one or more long houses containing from 500 to 1,000 hens arranged with double yards and kept only for the production of market eggs. The yards should be from 100 to 150 feet deep and should be plowed and sowed frequently to quick-growing crops to keep the land fresh. Such a house can be fitted with two large yards, one on each side, which reduces the expense of partitions in the yards and also greatly facilitates labor and cultivating the yards. Considerable green feed can be grown incidentally in keeping these yards fresh and in good condition.

The use of mammoth incubators materially cuts down the labor necessary in hatching large numbers of chickens, and a brooding system of stove brooding houses, or a small hot-water pipe system makes an economical brooding equipment and one which can be conducted successfully with a minimum amount of labor. The breeding stock under these conditions should be kept in colony houses scattered over a considerable area and if possible allowed free range, using their eggs for hatching during the breeding season and keeping from 50 to 100 hens in each house.

On the average general farm the poultry does not receive sufficient care to produce the best results, but by better arrangement of buildings and better methods the same amount of poultry could be kept with the labor now being used and better results obtained, while in many cases the size of the flocks could be increased and greater profits realized for the labor required. Women and children can do most of the work in raising poultry successfully on general farms.

On commercial poultry farms careful planning of equipment will greatly reduce labor, but a very intensive system is detrimental to profitable results with poultry. The danger is often too great intensification, which while temporarily reducing labor does not provide conditions under which poultry can be reproduced successfully with good results.